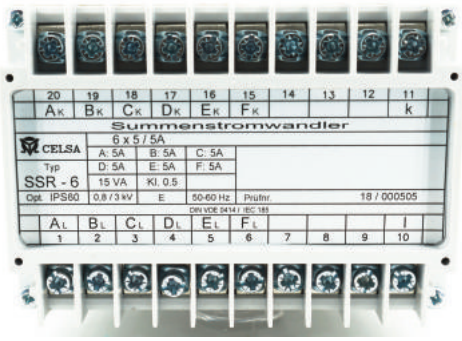
Summation current transformers

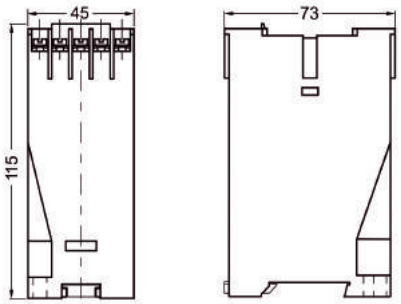
SSR



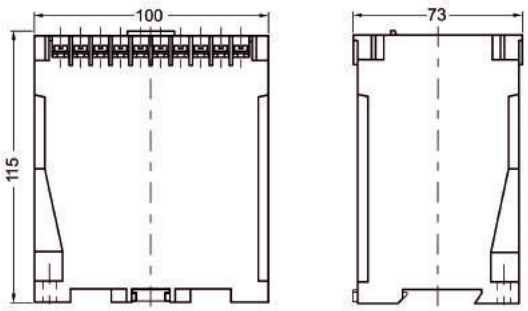
The summation current transformers SSR-2 to SSR-9 sums up the instantaneous values of diffrent currents in a network, providing a proportional alternating current. In order to that, several measuring transformers (main transformers) are used, one for each current, with their secondary windings connected to the primary windings of the summation transformer. All the primary windings of the summation current transformer must be connected to the same phase. If any of the primary windings of the SSR are not to be used, they must be left open. The standard execution is prepared for main transformers of the same transformation ratio. Otherwise, please indicate their ratios in your order.

Dimensions

Housing D10 (SSR-2 to SSR-4)

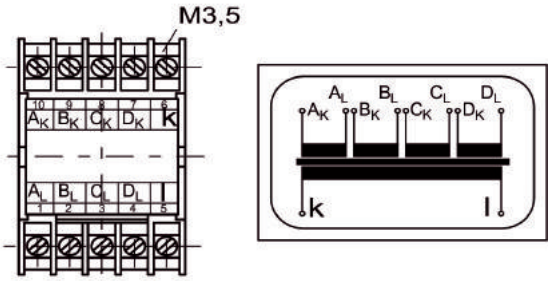


Housing D20 (SSR-5 to SSR-9)

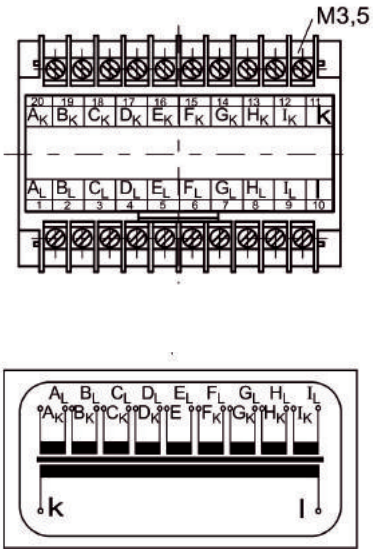


Connections

Housing D10 (SSR-2 to SSR-4)



Housing D20 (SSR-5 to SSR-9)



SSR Technical Features

Electrical Features	
Hightest voltage equipment:	720 V
Rated insolation leve:	4 kV, 1 min.
Rated shot-time thermal current (I_{th}):	60 x I_N
Rated dynamic current (I_{dyn}):	2.5 x I_{th}
Frecuency range:	50 - 60Hz
Internal consumption:	Max. 4 VA
Thermal class of insulation:	E
Accuracy class index and burden	
Class 0,5	15 VA
Class 1	15 VA
Mechanical Features	
Housings	Self-extinguishing polycarbonate UL94 V-0
Protection degree	IP40
Fixing	DIN-rail DIN EN50022 or screw fastening
Connection	Nickel plated secondary terminals with plus minus screws
Protection degree of connection	IP10, with secondary terminal cover = IP20 (option)
Weight	D10 = 400g, D20 = 600g
Hightest proportion for different ratios of main c.t`s	1:10
Housing size	SSR-2 until SSR-4 = D10 SSR-5 until SSR-9 = D20

SSR Technical Data, Executions

Article identical ratios of main c.t.'s	Rated burden VA sec. 5A / 1A		Article different ratios of main c.t.'s	Rated burden VA sec. 5A / 1A	
	Class 0.5	Class 1		Class 0.5	Class 1
SSR-2	15	15	**SSR-21**	15	15
SSR-3	15	15	**SSR-31**	15	15
SSR-4	15	15	**SSR-41**	15	15
SSR-5	15	15	**SSR-51**	15	15
SSR-6	15	15	**SSR-61**	15	15
SSR-7	15	15	**SSR-71**	15	15
SSR-8	15	15	**SSR-81**	15	15
SSR-9	15	15	**SSR-91**	15	15

other values on request

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www.celsamessgerate-spain.com
info@celsaspain.com / +34 96 130 93 78

SCMU210s

SCMU210s

Current Transformer and transducer in one housing

- from 30 up to 50 A
- Standard analogue output 0 - 20 mA / 0 - 10 V

Application

The measured quantity (i.e. primary current) is galvanically insulated (5kV/1 min), rectified (mean value principle) and converted into a proportional and load-independent DC signal current (or voltage). The passive type SCMU210s does not require auxiliary supply.

Snap-on mounting for DIN- rail, mounting brackets for mounting plates and screws for the busbar fixing are included in delivery.

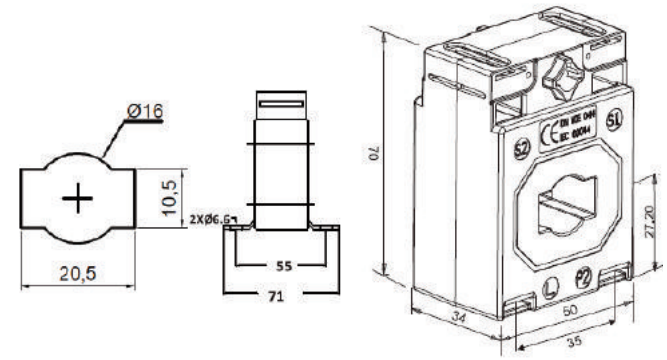
SCMU210s - Available metering ranges

Primary current A	Output 0-20mA without auxiliary supply	Output 0-10V without auxiliary supply
30	●	●
40	●	●
50	●	●

Order expample:

SCMU210s 30 A, 0-20 mA or SCMU210s 40A, 0-10V

Dimensions



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SCMU

SCMU

Current Transformer and transducer in one housing

- from 60 up to 600 A
- Standard analogue output 0 - 20 mA / 0 - 10 V

Application

The measured quantity (i.e. primary current) is galvanically insulated (5kV/1 min), rectified (mean value principle) and converted into a proportional and load-independent DC signal current (or voltage). The passive type SCMU210s does not require auxiliary supply.

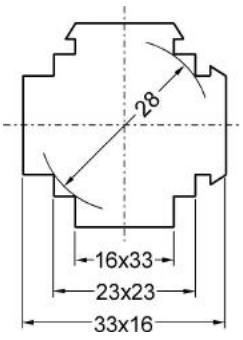
Snap-on mounting for DIN- rail, mounting brackets for mounting plates and screws for the busbar fixing are included in delivery.

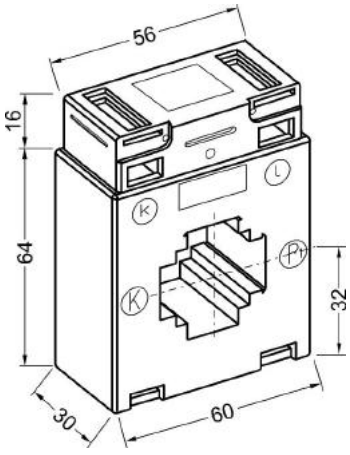
Order expample:
SCMU 60 A, 0-20 mA

SCMU - Available metering ranges

Primary current A	Output 0-20mA	Ouput 0-10V
	without auxiliary supply	
60	●	●
75	●	●
100	●	●
150	●	●
200	●	●
250	●	●
300	●	●
400	●	●
500	●	●
600	●	●

Dimensions





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SCMU/I

SCMU/I

Current Transformer and transducer in one housing

- from 10 up to 600 A
- Standard analogue output 4 - 20 mA
- Auxiliary supply: 230 VAC or 24 VDC

Application

The measured quantity (i.e. primary current) is galvanically insulated (5kV/1 min), rectified (mean value principle) and converted into a proportional and load-independent DC signal current (or voltage). The active SCMU/I connects to a auxiliary supply of 230 VAC or 24 VDC. These information have to indicated on the order.

Snap-on mounting for DIN- rail, mounting brackets for mounting plates and screws for the busbar fixing are included in delivery.

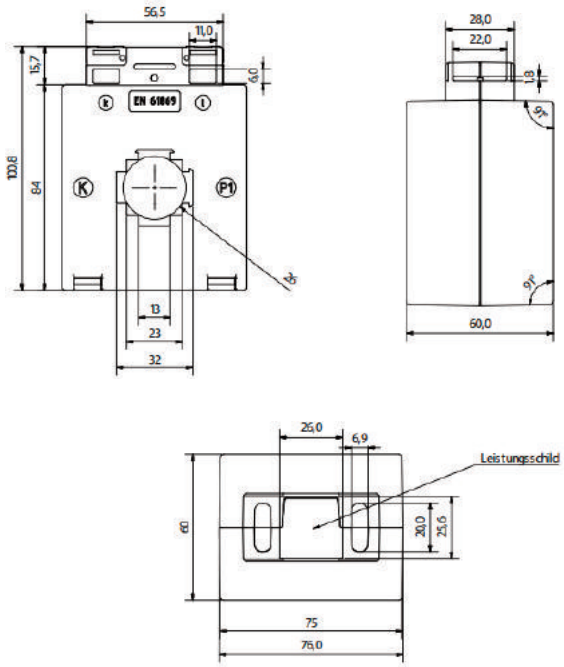
Order example:

SCMU/I 15 A, 4-20 mA Aux: 230V AC

SCMU/I - Available metering ranges

Primary current A	Output 4-20mA	
	Auxiliary supply 230V AC	Auxiliary supply 24V DC
10	●	●
15	●	●
20	●	●
25	●	●
30	●	●
40	●	●
50	●	●
60	●	●
75	●	●
100	●	●
150	●	●
200	●	●
250	●	●
300	●	●
400	●	●
500	●	●
600	●	●

Dimensions



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Busbars

CU-cable consumption between the measurement instrument and the current transformer

For secondary primary rated current of 5 A

conductor cross-section mm²	P = consumption in VA (2-wired line)					
	Distance in m					
	1	2	3	4	5	6
1,5	0,58	1,15	2,31	3,46	4,62	5,77
2,5	0,36	0,71	1,43	2,14	2,86	3,57
4	0,22	0,45	0,89	1,34	1,79	2,24
6	0,15	0,30	0,60	0,89	1,19	1,49
10	0,09	0,18	0,36	0,54	0,71	0,89

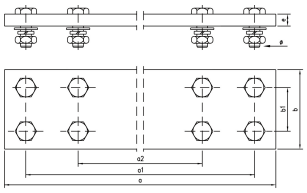
For secondary rated current of 1 A

conductor cross-section mm²	P = consumption in VA (2-wired line)					
	Distance in m					
	10	20	40	60	80	100
1	0,36	0,71	1,43	2,14	2,85	3,57
1,5	0,23	0,46	0,92	1,39	1,85	2,31
2,5	0,14	0,29	0,57	0,86	1,14	1,43
4	0,09	0,18	0,36	0,54	0,71	0,89
6	0,06	0,12	0,24	0,36	0,48	0,60
10	0,04	0,07	0,14	0,21	0,29	0,36

$$P = \frac{I^2 \cdot 2 \times L}{q_{cu} \cdot 56} \text{ VA}$$

L = Distance in m

q_{cu} = Conductor cross-section in mm²



busbars

To pay attention to the selection of current transformers:
1. the primary and secondary ratio of the current transformer;
2. the burden in VA. The burden is calculated of all connected meters and the wires as well.
3. the class accuracy according to VDE 0414 and IEC-determinations. For calculated measurement class 0.5. For internal measuring or protection relays class 1 and 3.

Copper bars' ampacity according to DIN 43671

Ampacity according to DIN 43671

Width x thickness	Cross section	Weight 1)	Continuous current in A / alternating current up to 60 Hz					
			coated			blank		
			numbers of bars			numbers of bars		
mm	mm²	kg/m	1 I	2 II	3 III	1 I	2 II	3 III
12 x 2	23,5	0,209	123	202	228	108	182	216
15 x 2	29,5	0,262	148	240	261	128	212	247
15 x 3	44,5	0,396	187	316	381	162	282	361
20 x 2	39,5	0,351	189	302	313	162	264	298
20 x 3	59,5	0,529	237	394	454	204	348	431
20 x 5	99,1	0,882	319	560	728	274	500	690
20 x 10	199	1,77	497	924	1320	427	825	1180
25 x 3	74,5	0,663	287	470	525	245	412	498
25 x 5	124	1,11	384	662	839	327	586	795
30 x 3	89,5	0,796	337	544	593	285	476	564
30 x 5	149	1,33	447	760	944	379	672	896
30 x 10	299	2,66	676	1200	1670	573	1060	1480
40 x 3	119	1,06	435	692	725	366	600	690
40 x 5	199	1,77	573	952	1140	482	836	1090
40 x 10	399	3,55	850	1470	2000	715	1290	1770
50 x 5	249	2,22	697	1140	1330	583	994	1360
50 x 10	499	4,44	1020	1720	2320	852	1510	2040
60 x 5	299	2,66	826	1330	1510	688	1150	1440
60 x 10	599	5,33	1180	1960	2610	985	1720	2300
80 x 5	399	3,55	1070	1680	1830	885	1450	1750
80 x 10	799	7,11	1500	2410	3170	1240	2110	2790
100 x 5	499	4,44	1300	2010	2150	1080	1730	2050
100 x 10	999	8,89	1810	2850	3720	1490	2480	3260
120 x 10	1200	10,7	2110	3280	4270	1740	2860	3740
160 x 10	1600	14,2	2700	4130	5360	2220	3590	4680
200 x 10	2000	17,8	3290	4970	6430	2690	4310	5610

1) Calculated with density of 8,9 kg/dm3

Material: E-Cu or other materials according to DIN 40 500 Part 3
Preferable used material: Flat bar with rounded edge according to DIN 46 433 Part 3
Continousely currents for bus bars of E-Cu with rectangle cross-section for indoor use at 35 °C air temperatur and 65 °C bus bar temperatur, vertical position of the bus bar width; Bus bar packets with distances between bus bars of one time bus bar width. For AC current and bus bar packets the distances between bus bars should be > 0,8 x centre to centre distance of the main primary conductors.
Integrated short bus bars in current transformers to be connected to main bus bars can be higher loaded than mentioned in the table if the rest of the bus bar system is higher designed than mentioned in the table (DIN 43671).

Primary bars — Design: brass-copper bar (electro-Cu) nickel-plated

With steal screws M12 x 35 (40) DIN 933 zinc plated and chromatized incl. washer, spring lock washer and hex nut

Width x height x length (mm)	Width x height x length (mm)	Width x height x length (mm)
30x 6x 140 O	50x 10x 180 O	2x 50x 10x 220 O
30x 8x 160 O	50x 10x 220 O	2x 60x 10x 220 O
30x 10x 140 O	60x 10x 180 O	2x 80x 10x 240 O
30x 10x 160 O	60x 10x 240 O	2x100x 10x 240 O
40x 5x 140 O	80x 10x 240 O	
40x 5x 160 O	100x 10x 240 O	Copper tube
40x 10x 140 O		Ø 22.5; length 34 mm
40x 10x 160 O		Ø 22.5;length 36 mm
50x 10x 140 O		

O Delivery period on request

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